

FORM PCT/PTO-1390 (Rev. 12-29-99)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER  032326-167
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>			U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) <b>09/936555</b>
INTERNATIONAL APPLICATION NO. PCT/FR00/00592	INTERNATIONAL FILING DATE 10 March 2000	PRIORITY DATE CLAIMED 15 March 1999	
TITLE OF INVENTION <b>METHOD FOR COMMUNICATING PARAMETERS OF A DIGITAL TRANSMISSION PROTOCOL</b>			
APPLICANT(S) FOR DO/EO/US <b>Pascal GUTERMAN</b>			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.			
2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.			
3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).			
4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.			
5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))			
a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).			
b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau.			
c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US)			
6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).			
7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))			
a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).			
b. <input type="checkbox"/> have been transmitted by the International Bureau.			
c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.			
d. <input checked="" type="checkbox"/> have not been made and will not be made.			
8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).			
9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).			
10. <input checked="" type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).			
<b>Items 11. to 16. below concern other document(s) or information included:</b>			
11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.			
12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.			
13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment.			
<input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.			
14. <input type="checkbox"/> A substitute specification.			
15. <input type="checkbox"/> A change of power of attorney and/or address letter.			
16. <input type="checkbox"/> Other items or information:			

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.50) <div style="font-size: 24pt; font-weight: bold; margin-top: 5px;">09/936555</div>	INTERNATIONAL APPLICATION NO. PCT/FR00/00592	ATTORNEY'S DOCKET NUMBER 032326-167
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17. <input checked="" type="checkbox"/> The following fees are submitted:				<b>CALCULATIONS</b>	PTO USE ONLY
<b>Basic National Fee (37 CFR 1.492(a)(1)-(5)):</b>  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1,000.00 (960)  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00 (970)  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00 (958)  International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00 (956)  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00 (962)					
<b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>					
Surcharge of \$130.00 (154) for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)). 20 <input type="checkbox"/> 30 <input type="checkbox"/>				\$	
Claims	Number Filed	Number Extra	Rate		
Total Claims	15 -20 =	0	X\$18.00 (966)	\$	-0-
Independent Claims	3 -3 =	0	X\$80.00 (964)	\$	-0-
Multiple dependent claim(s) (if applicable)			+ \$270.00 (968)	\$	N/A
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$	860.00
Reduction for 1/2 for filing by small entity, if applicable (see below).				\$	-
<b>SUBTOTAL =</b>				\$	860.00
Processing fee of \$130.00 (156) for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)). 20 <input type="checkbox"/> 30 <input type="checkbox"/>				\$	
<b>TOTAL NATIONAL FEE =</b>				\$	860.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 (581) per property +				\$	
<b>TOTAL FEES ENCLOSED =</b>				\$	860.00
				<b>Amount to be:</b> <b>refunded</b>	\$
				<b>charged</b>	\$

- a. ☐ Small entity status is hereby claimed.
- b. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.
- c. ☐ Please charge my Deposit Account No. 02-4800 in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.
- d. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 02-4800. A duplicate copy of this sheet is enclosed.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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SIGNATURE  
 James A. LaBarre  
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28,632  
 REGISTRATION NUMBER

Patent

Attorney's Docket No. 032326-167**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of	)	
	)	
Pascal GUTERMAN	)	Attention: DO/E0/US
	)	
Application No.: Corresponds to	)	BOX: PCT
PCT/FR00/00592	)	
	)	Group Art Unit: Unassigned
Filed: September 14, 2001	)	
	)	Examiner: Unassigned
For: METHOD FOR COMMUNICATING	)	
PARAMETERS OF A DIGITAL	)	
TRANSMISSION PROTOCOL	)	

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination and the calculation of filing fees, kindly amend the above-identified application as follows.

**IN THE SPECIFICATION:**

Page 1, immediately following the title appearing on lines 1 and 2, insert the following:

--This disclosure is based upon, and claims priority from French Application No. 99/03164, filed on March 15, 1999 and International Application No. PCT/FR00/00592, filed March 10, 2000, which was published on September 21, 2000 in a language other than English, the contents of which are incorporated herein by reference.

**Background of the Invention--**

Page 3, between lines 27 and 28, insert the following heading:

**--Summary of the Invention--**

Page 4, between lines 13 and 14, insert the following heading:

**--Brief Description of the Drawings--.**

Page 5, between lines 26 and 27, insert the following heading:

**--Detailed Description--.**

**IN THE CLAIMS:**

Kindly replace claims 1-15 as follows:

1. (Amended) A method for communicating parameters of a digital data transmission protocol between "reference" equipment and "follower" equipment to allow the follower equipment to adapt to the transmission characteristics of the reference equipment, comprising the following steps:
  - (a) connecting the reference equipment with the follower equipment for transmission between them according to a communication protocol known to the two equipments, and

(b) transmitting, from the reference equipment to the follower equipment, at the request of said follower equipment, information defining the characteristics of a second digital transmission protocol which will be used by the reference equipment for sending and receiving the data which will be exchanged between the two equipments, according to said second digital transmission protocol.

2. (Amended) A method according to Claim 1 wherein during step (a), the reference equipment indicates to the follower equipment that it can communicate according to said second digital transmission protocol.

3. (Amended) A method according to claim 2 wherein, during step (b), the follower equipment has the reference equipment transmit the characteristics of said second digital transmission protocol if said second protocol is not known to said follower equipment.

4. (Amended) A method according to claim 1 wherein the characteristics of the second digital transmission protocol are different depending on the direction of the digital data transmission.

5. (Amended) A method according to claim 1 wherein said second digital transmission protocol is of a synchronous type, and has transmission characteristics that are defined by the ranks of the cycles of a clock signal at which the values of synchronization,

data, check and signalling signals of a frame are transmitted and by the number of cycles of the clock signal defining the duration for each byte in a frame.

6. (Amended) A method according to claim 1 wherein said second digital transmission protocol is of a synchronous type, and has transmission characteristics that are defined at least by the composition of the bytes of a frame and by the transmission speed of the bits of each byte.

7. (Amended) A method according to Claim 6, wherein the transmission characteristics are defined by at least:

- the rank of the first data bit which will be transmitted;
- a data check code;
- the number of bits in each data item;
- the number of stop bits;
- the number of cycles of a clock signal per elementary time unit.

8. (Amended) A method according to Claim 6, wherein, in the transmission characteristics, the number of cycles of a clock signal per elementary time unit is replaced by a transmission speed.

9. (Amended) A method according to Claim 7 wherein the transmission characteristics also comprise a minimum number of inter-byte cycles.

10. (Amended) A method according to claim 7 wherein the transmission characteristics also comprise a level value corresponding to the binary value "0".

11. (Amended) A method according to claim 7 wherein the transmission characteristics also comprise a maximum waiting time.

12. (Amended) A method according to claim 7 wherein the transmission characteristics also comprise a new byte transmission attempt.

13. (Amended) A method according to claim 7 wherein the transmission characteristics also comprise a maximum data block size.

14. (Amended) An electronic smart card that communicates with a reader according to a first communication protocol known to both said smart card and said reader upon connection thereto, and which transmits to the reader, at the request of said reader, information defining the characteristics of a second digital transmission protocol that will be employed by said smart card for exchanging data with said reader.

15. (Amended) A read terminal for electronic smart cards that communicates with smart cards in accordance with a first communication protocol known to both said reader and said smart cards upon the connection of a smart card thereto, and which transmits a request for information defining the characteristics of a second digital


transmission protocol that will be employed by the smart card to exchange data with said reader.

**REMARKS**

Entry of the foregoing amendment is respectfully requested. This amendment is intended to place the claims in a more conventional format and eliminate the multiple dependency of the claims.

Respectfully submitted,

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Date: September 14, 2001

**Attachment to Preliminary Amendment dated September 14, 2001**

**Marked-up Claims 1 - 15**

1. (Amended) A method for communicating parameters of a digital data transmission protocol between [a so-called] "reference" equipment and [a so-called] "follower" equipment [so as] to allow the follower equipment to adapt to the transmission characteristics of the reference equipment [which comprises], comprising the following steps [consisting in]:

(a) connecting [transmission-wise] the reference equipment with the follower equipment for transmission between them according to a communication protocol known to the two equipments, and

(b) transmitting, from the reference equipment to the follower equipment, at the request of said follower equipment, information defining the characteristics of a second[, particular,] digital transmission protocol which will be used by the reference equipment for sending and receiving the data which will be exchanged between the two equipments, according to said [particular] second digital transmission protocol.

2. (Amended) A method according to Claim 1[, characterised in that], wherein during step (a), the reference equipment indicates to the follower equipment that it can communicate according to said [particular] second digital transmission protocol.

**Attachment to Preliminary Amendment dated September 14, 2001**

**Marked-up Claims 1 - 15**

3. (Amended) A method according to [either one of Claims 1 or 2, characterised in that] claim 2 wherein, during step (b), the follower equipment has the reference equipment transmit the characteristics of said [particular] second digital transmission protocol if [it does not know it] said second protocol is not known to said follower equipment.

4. (Amended) A method according to [any one of the previous Claims 1 to 3, characterised in that] claim 1 wherein the characteristics of the [particular] second digital transmission protocol are different depending on the direction of the digital data transmission.

5. (Amended) A method according to [any one of the previous Claims 1 to 4 in its application to a particular] claim 1 wherein said second digital transmission protocol is of a synchronous type, [characterised in that the] and has transmission characteristics that are defined by the ranks [(H1, H3, L6, H28, H34, etc.)] of the cycles of [the] a clock signal at which the values of [the] synchronization, data, check and signalling signals of a frame are transmitted and by the number of cycles of the clock signal defining the duration [(Ibyte) reserved] for each byte in a frame.

**Attachment to Preliminary Amendment dated September 14, 2001**

**Marked-up Claims 1 - 15**

6. (Amended) A method according to [any one of Claims 1 to 4 in its application to a particular] claim 1 wherein said second digital transmission protocol is of a synchronous type, [characterised in that the] and has transmission characteristics that are defined at least by the composition of the [frame of bytes of each of the] bytes of [the] a frame and by the transmission speed of the bits of each byte.

7. (Amended) A method according to Claim 6, [characterised in that] wherein the transmission characteristics are defined by at least:

- the rank of the first data bit which will be transmitted;
- [the] a data check code;
- the number of bits in each data item;
- the number of stop bits;
- the number of cycles of [the] a clock signal per elementary time unit.

8. (Amended) A method according to Claim 6, [characterised in that] wherein, in the transmission characteristics, the number of cycles of [the] a clock signal per elementary time unit is replaced by a transmission speed.

**Attachment to Preliminary Amendment dated September 14, 2001**

**Marked-up Claims 1 - 15**

9. (Amended) A method according to Claim 7 [or 8, characterised in that] wherein the transmission characteristics also comprise a minimum number of inter-byte cycles.
10. (Amended) A method according to [any one of Claims 7 to 9, characterised in that] claim 7 wherein the transmission characteristics also comprise a level value [(High/Low)] corresponding to the binary value "0".
11. (Amended) A method according to [any one of Claims 7 to 10, characterised in that] claim 7 wherein the transmission characteristics also comprise a maximum waiting time.
12. (Amended) A method according to [one of Claims 7 to 11, characterised in that] claim 7 wherein the transmission characteristics also comprise a new byte transmission attempt.
13. (Amended) A method according to [one of Claims 7 to 12, characterised in that] claim 7 wherein the transmission characteristics also comprise a maximum data block size.

**Attachment to Preliminary Amendment dated September 14, 2001**

**Marked-up Claims 1 - 15**

14. (Amended) An electronic smart card[, characterised in that it uses the method according to any one of the previous Claims 1 to 13] that communicates with a reader according to a first communication protocol known to both said smart card and said reader upon connection thereto, and which transmits to the reader, at the request of said reader, information defining the characteristics of a second digital transmission protocol that will be employed by said smart card for exchanging data with said reader.

15. (Amended) A read terminal for electronic smart cards[, characterised in that it uses the method according to any one of the previous Claims 1 to 13] that communicates with smart cards in accordance with a first communication protocol known to both said reader and said smart cards upon the connection of a smart card thereto, and which transmits a request for information defining the characteristics of a second digital transmission protocol that will be employed by the smart card to exchange data with said reader.

METHOD FOR COMMUNICATING PARAMETERS OF A DIGITAL  
TRANSMISSION PROTOCOL

5 The invention relates to a method for communicating parameters of a digital transmission protocol between a so-called "reference" digital transmission equipment such as an electronic smart card and a so-called "follower" digital transmission equipment, for example a read terminal, in order to  
10 make known to it the characteristic parameters of the desired transmission, said transmission having to take place in fact by taking as a reference the performance of the reference equipment, that is to say the more modest.

15 The method applies more particularly to the digital transmission method described in the French patent application filed on 18 November 1998 under the number 98 14492.

3/p/b

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This method is characterised by a sequence of frames, each frame having, for example, the composition or format shown in Figure 1.

Thus, each frame comprises successively, from  
5 start to end, frame synchronization signals 10, data signals 12, data check code signals 14 and an end of frame signal 16.

The synchronization signal is, for example,  
10 defined by the sequence of rectangular signals 20, 22, 24 and 26 (Figure 2), the durations of which are respectively one clock cycle, two clock cycles, three clock cycles and a constant number from one to several tens of clock cycles.

The data signals are, for example, in the form of  
15 bytes composed of binary signals or bits  $b_0$ ,  $b_1$ ,  $b_2$ ,  $b_3$ ,  $b_4$ ,  $b_5$ ,  $b_6$  and  $b_7$  (Figure 3), whose binary values "1" or "0" are stable at characteristic instants  $Ib_0$ ,  $Ib_1$ ,  $Ib_2$ ,  $Ib_3$ ,  $Ib_4$ ,  $Ib_5$ ,  $Ib_6$  and  $Ib_7$ , respectively (Figure 4).

20 In the time intervals  $IT_0$  to  $IT_7$ , the signal of value "1" or "0" of the bit is present only during a given time and at a given position in this interval.

The data check code signals 14 are similar to the data signals in their presentation.

25 Two consecutive elementary data items or bytes are separated by a time interval or window 30 of given and constant duration which is used for transmitting signalling signals such as an end of byte and/or end of frame signal 32 or a reception suspension signal 34,  
30 referred to as a data flow control signal known by the

term "Xoff". These signals 32 and 34 have precise positions in this time interval 30 so as not to be confused with one another.

5 In order that such a sequence of signals forming a frame can be detected and understood by the follower equipment, it is necessary for the latter to know, on the one hand, the composition of the frame and, on the other hand, the instants in this frame at which it must take into account the value of the binary signals.

10 In current smart card/terminal systems, this information relating to the composition of the frame and the binary signal value or sampling instants are known to the terminal (follower equipment) by "construction". Therefore, it is difficult to change  
15 them in order to adapt them to evolution of the technical characteristics of the reference equipment.

Thus, if the technologies used in the smart cards allow the processing speed to be increased, this increase in speed cannot allow the communication rate  
20 to be increased since the latter is "fixed" by the follower equipment.

Moreover, in the current state of the systems used, it is difficult to make items of equipment having different communication speeds exist together since it  
25 is necessary for the follower equipment to know the characteristics of each reference equipment to which it is capable of being connected.

The invention therefore relates to a method for communicating parameters of a digital data transmission  
30 protocol between a so-called "reference" equipment and

a so-called "follower" equipment so as to allow the follower equipment to adapt to the transmission characteristics of the reference equipment which comprises the following steps consisting in:

- 5           (a) connecting transmission-wise the reference equipment with the follower equipment according to a communication protocol known to the two equipments, and
- (b) transmitting, from the reference equipment to the follower equipment, information defining the
- 10       characteristics of a particular digital transmission method which will be used by the reference equipment for sending and receiving the data which will be exchanged between the two equipments.

Other characteristics and advantages of the present invention will emerge from a reading of the following description of a particular example embodiment of the invention, said description being given in relation to the accompanying drawings in which:

- 20       - Figure 1 is a diagram showing the composition or format of a digital transmission frame to which the invention applies;
- Figure 2 is a diagram showing, for the frame of Figure 1, one particular form of the frame
- 25       synchronization signals;
- Figure 3 is a diagram showing, for the frame of Figure 1, one composition of the data signals and the data check codes as well as the end of frame signalling signal when it exists;

- Figure 4 is a diagram showing, for the frame of Figure 1, the synchronization signals, the data signals and the signalling signals of a frame in relation to the sampling instants of these signals;

5       - Figure 5 is a table showing the information transmitted by the reference equipment for indicating to the follower equipment the cycles of a clock signal defining the sampling instants in the follower equipment of the signals received from the reference equipment;

10       - Figure 6 is a table showing the information transmitted by the reference equipment for indicating to the follower equipment the cycles of a clock signal defining the instants at which the follower equipment must send the signals to the reference equipment;

15       - Figure 7 is a table showing the information transmitted by the reference equipment for indicating to the follower equipment another form of frame synchronization signal different from that of Figure 5;

20       - Figure 8 is a diagram showing an example composition of a byte in a digital transmission protocol of asynchronous type, and

25       - Figure 9 is a table showing the information transmitted by the reference equipment to the follower equipment for indicating thereto the characteristics of its asynchronous transmission protocol.

30       The method for communicating parameters of a digital transmission protocol from a reference equipment to a follower equipment will be described notably in its application to a digital transmission

frame which was set out in the preamble in relation to Figures 1 to 4, these Figures 1 to 4 forming an integral part of the description of the invention.

5 The invention will be described in its application to a microcircuit card, also called an electronic smart card, which is capable of communicating with a terminal, such as a bank cash dispenser, by means of digital signals transmitted by galvanic, radio, inductive or optical links. However,  
10 it applies to any communication or transmission of digital signals between two equipments, of synchronous or asynchronous type.

In the remainder of the description, the microcircuit card will be referred to as the "reference  
15 equipment" while the terminal will be referred to as the "follower equipment" in order to indicate that the terminal communicates with the microcircuit card according to a mode or method imposed by the latter which constitutes the "reference".

20 It should be noted that the terminal and the microcircuit card are alternately sending equipment and receiving equipment and share the same clock signal supplied by the terminal, which allows synchronism.

The invention applies notably to the digital  
25 transmission method described briefly in the preamble and which corresponds to the detailed description given thereof in the aforementioned patent application.

Figure 4 shows, besides the synchronization, data and signalling signals, the instants at which these

signals must be sampled in order to ascertain their value. These instants are listed as follows:

- Is1, Is2 and Is3 for the synchronization signals;
- 5       - Ib0, Ib1, Ib2, Ib3, Ib4, Ib5, Ib6 and Ib7 for the signals of one byte of a frame;
- Isig0 and Isig1 for, respectively, the end of frame or end of byte signal and for the reception suspension signal, referred to as the data flow control
- 10       signal, known by the term "Xoff".

These instants are defined by the rank of the cycles of a clock signal to be counted from an initial instant (start of frame), said clock signal being common to the microcircuit card and to the terminal to

15       which it is connected and being supplied by the terminal.

The table of Figure 5 corresponds, for example, to the sending instants of the microcircuit card, that is to say the instants at which the terminal must sample the signals received from the microcircuit card.

20       It shows in the first column a list of the sampling instants and in the second column the ranks of the clock cycles at which they must appear. In the second column, the rank is indicated by a number, the upper

25       case letter H and L indicating the part of the clock cycle (H = "High" or L = "Low") in which the sampling must be carried out.

The table of Figure 6 then corresponds to the receiving instants of the microcircuit card, that is to

30       say the instants at which the terminal must send in

order to be understood, during receiving, by the microcircuit card.

Each table comprises, furthermore, an additional line called "Ibyte" for indicating the duration separating the starts of two consecutive bytes, this duration including the duration of a byte and that reserved for the signalling signals. The values shown in the tables of Figures 5 and 6 are very similar in that the synchronization and signalling signals are identical while the data and byte duration (Ibyte) signals are slightly different. However, the invention can be used with synchronization and signalling values which are very different at sending (Figure 5) and receiving (Figure 6) but also with very different data and inter-byte duration values.

Thus, the table of Figure 7 corresponds to that of Figure 5 but with a synchronization signal which is very different in the sense that no clock rank is shown for the instants Is1, Is2 and Is3, which is embodied by the value "0". Such a synchronization signal means that the terminal must take into account only the falling edge of the signal sent by the microcircuit card, this edge indicating the start of counting of the clock signals.

So that the "follower" equipment is in a position to apply the conventions listed in the tables of Figures 5 and 6, the invention makes provision that the microcircuit card transmits them to the terminal at the request thereof.

When a terminal receives the information contained in these tables of Figures 5 and 6, it records them so as to use them for any future communication with this microcircuit card or any other  
5 card of the same family, during receiving and sending.

More precisely, upon the first communication between a new microcircuit card having a new transmission mode according to the invention and a terminal, the new card informs the terminal in the  
10 transmission mode  $T = 0$ , for example, that it can communicate according to another mode. When the terminal recognizes that it is another mode it does not know, it sends an instruction for reading, from the card, the tables of Figures 5 and 6, recording them in  
15 its memory and using them for initializing a transmission according to the new mode with this card.

On account of the information in the tables of Figures 5 and 6 being recorded in the terminal, the transfer of these tables is no longer necessary when  
20 the terminal recognizes that it is a card operating according to this new mode.

The invention has been described in relation to a microcircuit card capable of communicating with a terminal according to a synchronous mode and a digital  
25 transmission method described in the aforementioned patent application. However, the invention is applicable to an asynchronous mode, in which case the information to be transmitted from the reference equipment to the follower equipment relates to the  
30 structure of the frame and not the sampling instants.

Figure 8 is an example structure of a byte in an asynchronous protocol. It comprises byte start bits "DB", data bits B0 to B7 in a certain order starting for example with the most significant bit, that is B7, bits "PA" for checking the integrity of the data conveyed, for example parity, and stop bits "STOP".

It should be noted that a frame in an asynchronous protocol can comprise a number of bytes.

The table of Figure 9 shows the information which the reference equipment must supply to the follower equipment so that the latter correctly analyses the frames it receives from the reference equipment or sends frames which are correctly analysed by the reference equipment.

The information to be transmitted is, for example:

- (a) the rank of the first data bit transmitted, for example the seventh, that is to say B7;
- (b) the voltage level "HIGH" or "LOW" which corresponds to the binary digit "0";
- (c) the parity for integrity checking of the message, that is "EVEN", "ODD" or "NONE";
- (d) the number of bits in a data item, for example eight;
- (e) the number of stop bits "STOP", for example two;
- (f) the possibility of repeating the byte in the event of a parity error, "YES" or "NO";

(g) the number of cycles of the clock signal per Elementary Time Unit "ETU" corresponding to one bit, for example thirty-two;

5 (h) the minimum number of cycles of the clock signal between two consecutive bytes, for example four;

(i) an information item indicating the maximum waiting time, better known by the expression "TIME OUT", this time being expressed in clock cycles, for example eighty;

10 (j) the maximum data block size, for example, sixty-four;

(k) the transmission speed expressed in baud, for example 9600.

15 In the table of Figure 9, the "Receiving" column shows the receiving characteristics of the reference equipment, these characteristics having to be used during sending by the follower equipment in order to be understood by the reference equipment. Similarly, the "Sending" column shows the sending characteristics of  
20 the reference equipment, these characteristics having to be used during receiving by the follower equipment in order to receive the messages coming from the reference equipment.

25 It should be noted that certain of the characteristics in the table of Figure 9 are not necessary, for example those of lines (b), (f), (h), (i), (j) or (k).

30 The result thereof is that the minimum number of characteristics to be transmitted are (a), (c), (d), (e), to which it is necessary to add (g) or (k).

It should be noted that the tables of Figures 5, 6, 7 and 9 are, for example, in the form of computer files which are transmitted to the follower equipment at the request thereof, for example by means of a read  
5 instruction from the follower equipment.

## AMENDED SHEET

~~17~~ 13

## CLAIMS

1. A method for communicating parameters of a digital data transmission protocol between a so-called "reference" equipment and a so-called "follower" equipment so as to allow the follower equipment to adapt to the transmission characteristics of the reference equipment which comprises the following steps consisting in:

(a) connecting transmission-wise the reference equipment with the follower equipment according to a communication protocol known to the two equipments, and

(b) transmitting, from the reference equipment to the follower equipment, at the request of said follower equipment, information defining the characteristics of a second, particular, digital transmission protocol which will be used by the reference equipment for sending and receiving the data which will be exchanged between the two equipments, according to said particular digital transmission protocol.

2. A method according to Claim 1, characterised in that, during step (a), the reference equipment indicates to the follower equipment that it can communicate according to said particular digital transmission protocol.

3. A method according to either one of Claims 1 or 2, characterised in that, during step (b), the follower equipment has the reference equipment transmit the characteristics of said particular digital transmission protocol if it does not know it.

## AMENDED SHEET

18 14

4. A method according to any one of the previous Claims 1 to 3, characterised in that the characteristics of the particular digital transmission protocol are different depending on the direction of the digital data transmission.

5. A method according to any one of the previous Claims 1 to 4 in its application to a particular digital transmission protocol of synchronous type, characterised in that the transmission characteristics are defined by the ranks (H1, H3, L6, H28, H34, etc.) of the cycles of the clock signal at which the values of the synchronization, data, check and signalling signals of a frame are transmitted and by the number of cycles of the clock signal defining the duration (lbyte) reserved for each byte in a frame.

6. A method according to any one of Claims 1 to 4 in its application to a particular digital transmission protocol of asynchronous type, characterised in that the transmission characteristics are defined at least by the composition of the frame of bytes of each of the bytes of the frame and by the transmission speed of the bits of each byte.

7. A method according to Claim 6, characterised in that the transmission characteristics are defined by at least:

- the rank of the first data bit which will be transmitted;
- the data check code;
- the number of bits in each data item;
- the number of stop bits;

~~10~~ 15

- the number of cycles of the clock signal per elementary time unit.

8. A method according to Claim 6, characterised in that, in the transmission characteristics, the number of cycles of the clock signal per elementary time unit is replaced by a transmission speed.

9. A method according to Claim 7 or 8, characterised in that the transmission characteristics also comprise a minimum number of inter-byte cycles.

10. A method according to any one of Claims 7 to 9, characterised in that the transmission characteristics also comprise a level value (High/Low) corresponding to the binary value "0".

11. A method according to any one of Claims 7 to 10, characterised in that the transmission characteristics also comprise a maximum waiting time.

12. A method according to one of Claims 7 to 11, characterised in that the transmission characteristics also comprise a new byte transmission attempt.

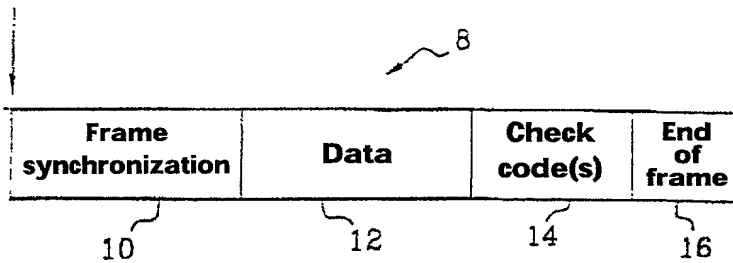
13. A method according to one of Claims 7 to 12, characterised in that the transmission characteristics also comprise a maximum data block size.

14. An electronic smart card, characterised in that it uses the method according to any one of the previous Claims 1 to 13.

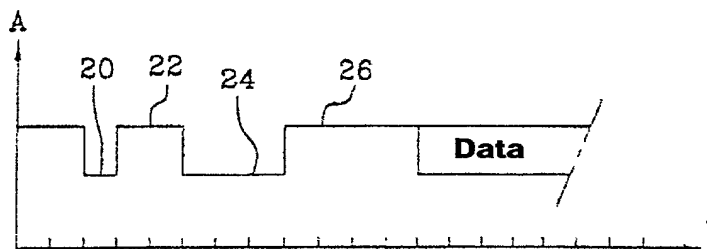
15. A read terminal for electronic smart cards, characterised in that it uses the method according to any one of the previous Claims 1 to 13.

Start of frame

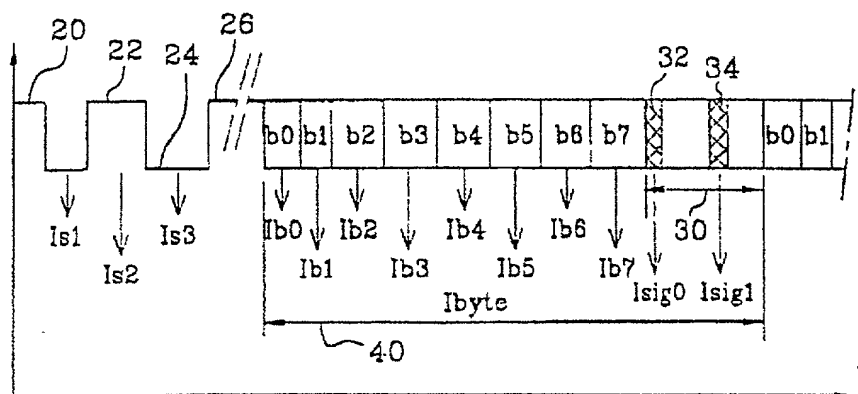
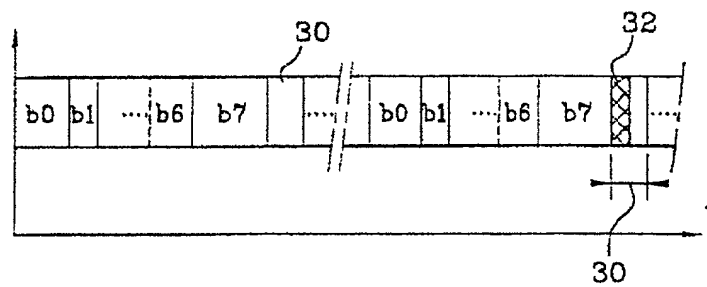
**FIG.1**



**FIG.2**



**FIG.3**



**FIG.4**

**FIG.5****SENDING**

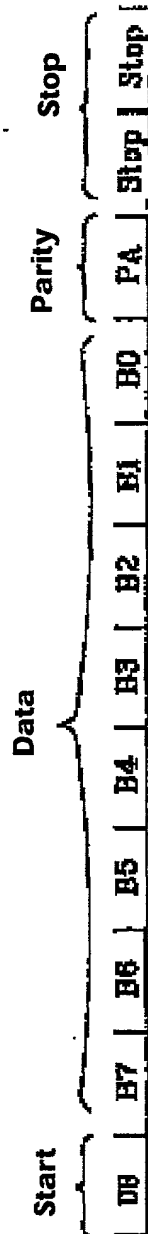
Is1	H1
Is2	H3
Is3	L6
Ib0	H28
Ib1	H34
=====	
Ib7	H70
Isig0	H94
Isig1	L97
Ibyte	80

**FIG.6****RECEIVING**

Is1	H1
Is2	H3
Is3	L6
Ib0	H30
Ib1	H36
=====	
Ib7	H72
Isig0	H94
Isig1	L97
Ibyte	82

**FIG.7****SENDING**

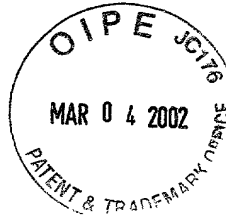
Is1	0
Is2	0
Is3	0
Ib0	H28
Ib1	H34
=====	
Ib7	H70
Isig0	H94
Isig1	L97
Ibyte	80

**FIG. 8**

- (a) = Rank of the first data bit transmitted  
 (b) = Level for 0  
 (c) = Parity  
 (d) = Number of data bits  
 (e) = Number of stop bits  
 (f) = New byte transmission attempt  
 (g) = Number of clock cycles per ETU  
 (h) = Minimum number of inter-byte cycles  
 (i) = Maximum waiting time  
 (j) = Maximum data block size  
 (k) = Transmission speed

Receiving	Sending
7	7
High/Low	High/Low
Even/Odd/None	Even/Odd/None
0	0
2	2
Yes/No	Yes/No
32	16
4	
80	
64	
9500	9500

**FIG. 9**



# 3  
032326-167  
Attorney's Docket No.

**COMBINED DECLARATION AND POWER OF ATTORNEY  
FOR UTILITY OR DESIGN PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**METHOD FOR COMMUNICATING PARAMETERS OF A DIGITAL TRANSMISSION  
PROTOCOL**

the specification of which (check only one item below):

- ☐ is attached hereto.  
☒ was filed as United States Patent application  
Number 09/936,555 on September 14, 2001  
and was amended on \_\_\_\_\_ (if applicable).  
☐ was filed as PCT International application  
Number \_\_\_\_\_ on \_\_\_\_\_  
and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119 (a)-(d), 172 or 365 of any foreign application(s) for patent or inventor's certificate or of any international (PCT) application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international (PCT) application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

**PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §§119(a)-(d), 172 or 365:**

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. §§119, 172 or 365
France	99/03164	15 03 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Combined Declaration and Power of Attorney  
for Utility or Design Patent Application  
Attorney's Docket No. 032326-167

Page 2 of 2

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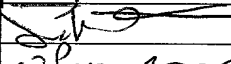
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